

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2009 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 48-59,66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are indefinite in that they depend on cancelled claim 47. For the purpose of examination, claims that depend from canceled claim 47 will be interpreted as being dependent on claim 19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19-33,38-40,44-53,55-61,65-72,87-97,103-105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (4,945,914) in view of Strohl Jr. et al (4,905,698) or Van Steenwyk et al (4,173,228). Allen discloses an interactive system and method that includes using fiducial markers to identify a patient reference frame and images of those markers to define an image reference frame. The markers can either be anatomical markers are fiducial markers implanted in the body. Surgical intervention can be carried out after a target is located using the markers and images. The surgery can be robotically controlled and can include radiation or laser therapy. The markers can be located using a metal detector, ultrasonic detector or any instrument that can sense the position of the implant in the body. The images obtained are a series of two-dimensional slices that include the volume of the tumor therefore providing three dimensional information. The computer used can either be the computer that is part of the existing scanning system or a stand-alone computer. Allen fails to disclose the use of electromagnetic tracking means for tracking the position of the markers/instrument. Strohl et al and Van Steenwyk et al disclose the use of electromagnetic tracking means for tracking the location of a device. It would have been obvious to one skilled in the art to have modified Allen such that the means for tracking the position of the markers is an electromagnetic tracking device. Such a modification merely involves the substitution of one known type of tracking device for another. Furthermore, it would have been obvious to one skilled in the art to use the locating device to track the position of the surgical instrument in order to properly align it with respect to the body for treatment as taught by Strohl et al and Steenwyk et al. Allen fails to disclose the use of a graphical tool to identify the base points in the image data. The system of Allen inherently includes means to identify the base points in the image. In the absence of any showing of criticality, the specific means used to identify the base points in the image would have been an obvious design choice of known equivalents in the art. With respect to claims 53,57,58, in the absence of any showing of criticality, the specific form of the information displayed regarding the target location

and the direction of intervention would have been an obvious design choice of known equivalents in the art. With respect to claim 65, in the absence of any showing of criticality, the specific type of data provided would have been an obvious design choice of known equivalents in the art. With respect to claim 68, Allen discloses that the patient remain fixed with respect to the scanner. It would have been obvious to one skilled in the art to have fixed the head set to the operating table in order to prevent the patient from moving with respect to the scanner.

Claims 34-37,41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen ('914) in view of Strohl Jr. et al or Van Steenwyk et al as applied to claims 29,30 above, and further in view of Lewin (4,197,855). Allen fails to disclose the use of optical tracking means for tracking the position of the markers. Lewin disclose the use of optical tracking means for tracking the location of a device. It would have been obvious to one skilled in the art to have modified Allen such that the means for tracking the position of the markers is an optical tracking device. Such a modification merely involves the substitution of one known type of tracking device for another. In the absence of any showing of criticality, the specific type of optical tracking means used would have been an obvious design choice of known equivalents in the art.

Claims 54,99-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen ('914) in view of Strohl Jr. et al or Van Steenwyk et al as applied to claims 51, 87 above, and further in view of Codrington (4,572,198). Codrington discloses a medical imaging system with a catheter where the position of the catheter is displayed in real-time on the images provided. It would have been obvious to one skilled in the art to have further modified Allen such that the position of the treatment device is shown in the image reference frame in order to allow the operator to know if it is properly aligned with respect to the target.

Claims 73-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen ('914) in view of Codrington and Strohl Jr. et al or Van Steenwyk et al. Allen

discloses an interactive system and method that includes using fiducial markers to identify a patient reference frame and images of those markers to define an image reference frame. The markers can either be anatomical markers or fiducial markers implanted in the body. Surgical intervention can be carried out after a target is located using the markers and images. The surgery can be robotically controlled and can include radiation or laser therapy. The markers can be located using a metal detector, ultrasonic detector or any instrument that can sense the position of the implant in the body. The images obtained are a series two-dimensional slices that include the volume of the tumor therefore providing three dimensional information. The computer used can either be the computer that is part of the existing scanning system or a stand-alone computer. Allen fails to disclose determining the position of the surgical instrument and displaying its position in the image reference frame. Allen also fails to disclose the use of electromagnetic tracking means for tracking the position of the markers/instrument. Strohl et al and Van Steenwyk et al disclose the use of electromagnetic tracking means for tracking the location of a device. It would have been obvious to one skilled in the art to have modified Allen such that the means for tracking the position of the markers is an electromagnetic tracking device. Such a modification merely involves the substitution of one known type of tracking device for another. Furthermore, it would have been obvious to one skilled in the art to use the locating device to track the position of the surgical instrument in order to properly align it with respect to the body for treatment as taught by Strohl et al and Steenwyk et al. Codrington discloses a medical imaging system with a catheter where the position of the catheter is detected and displayed in real-time on the images provided. It would have been obvious to one skilled in the art to have further modified Allen such that the position of the treatment device is shown in the image reference frame in order to allow the operator to know if it is properly aligned with respect to the target.

Oath/Declaration

In accordance with 37 CFR 1.175(b)(1), a supplemental reissue oath/declaration under 37 CFR 1.175(b)(1) must be received before this reissue application can be allowed.

Claims 1-16,19-46,48-97,99-105 are rejected as being based upon a defective reissue declaration under 35 U.S.C. 251. See 37 CFR 1.175. The nature of the defect is set forth above.

Receipt of an appropriate supplemental oath/declaration under 37 CFR 1.175(b)(1) will overcome this rejection under 35 U.S.C. 251. An example of acceptable language to be used in the supplemental oath/declaration is as follows:

"Every error in the patent which was corrected in the present reissue application, and is not covered by a prior oath/declaration submitted in this application, arose without any deceptive intention on the part of the applicant."

See MPEP § 1414.01.

Response to Arguments

Applicant's arguments filed 9/2/09 have been fully considered but they are not persuasive. Applicant's arguments regarding claims 19,73 are noted, however, Strohl et al and Van Steenwyk et al each disclose the use of electromagnetic tracking means for tracking the location of a device and the use of such would have been obvious for the reasons provided in the rejections above. Applicant's arguments regarding Codrington are noted, however, the arguments do not appear to be directed to claimed limitations. Applicant continues to argue that the references require continuous imaging to track the position of an instrument. It should be noted that the claims fail to preclude the use of continuous imaging.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth S. Smith whose telephone number is 571-272-4745. The examiner can normally be reached on M-F 7:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/
Primary Examiner, Art Unit 3737

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